

Response to Office Action dated June 30, 2004
Attorney Docket No.: 26048
Application No.: 10/796,200
Art Unit: 2854

REMARKS

The present amendment is in response to the Office Action mailed June 30, 2004, in which Claims 1 through 12 were rejected and claims 13-20 were allowed. Claims 1-20 are currently pending in the application and are presented for reconsideration and further examination in view of the following remarks.

By this Response no claims are amended and the prior art rejection is traversed. Arguments in support thereof are provided.

Applicants have thoroughly reviewed the outstanding Office Action including the Examiner's rejections, indication of allowable subject matter, and the reference cited therein. The following remarks are believed to be fully responsive to the Office Action and render all claims at issue patentably distinguishable over the cited references.

Reconsideration and withdrawal of the rejections set forth in the Office Action are respectfully requested.

I. **Claim Rejections - 35 U.S.C. § 102**

The Examiner rejected claims 1 through 5 under 35 U.S.C. §102(e) as being anticipated by Horng et al. (U.S. Patent Publication No.2004/0079951 A1) and rejected claims 1 through 12 [*sic*] under 35 U.S.C. §102(e) as being anticipated by Yoo (U.S. Patent Publication No. 2003/0189212 A1).

Response

Applicant respectfully traverses these rejections. Reconsideration and withdrawal of the rejections are respectfully requested.

The test for anticipation under section 102 is whether each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP §2131. The identical invention must be shown in as complete detail as is contained in the claim. Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP §2131. The elements must also be arranged as required by the claim. In re Bond, 15 USPQ2d 1566 (Fed. Cir. 1990).

A. Rejection of claims 1 through 5 under 35 U.S.C. §102(e) as being anticipated by Horng et al. (U.S. Patent Publication No.2004/0079951 A1)

It is respectfully submitted that Horng et al. fails to disclose each and every element as set forth in independent claim 1.

According to claim 1, an LED epitaxial structure is formed on a provisional substrate, and then a first electrode layer is formed on the LED epitaxial structure. A metallic permanent structure is formed on the first electrode layer. Therefore, the provisional substrate and the metallic permanent structure are deposited on the opposite side of the LED epitaxial structure. Further, the metallic permanent substrate is formed prior to the removal of the provisional substrate.

In the method disclosed by Horng et al., however, a GaAs substrate 19 and the copper substrate 21 are formed on the same side of the LED epitaxial structure. That is, it is impossible for the GaAs substrate 19 to exist with the copper substrate 21 at the same time. To form the copper structure, the GaAs substrate 19 must be removed first. Thus, there is a difference between the Horng et al. reference and the claimed invention. Hence, the method in claim 1 is not anticipated by Horng et al.

Similar arguments can be formulated regarding the Examiner's rejection of the dependent claims.

Moreover, claim 4 further discloses several kinds of the materials for the metallic permanent substrate. Yet, the material of the copper substrate disclosed by Horng et al. includes copper only. Therefore, Horng et al. fails to teach the materials of the metallic permanent substrate as recited in claim 4.

In claim 5, the provisional substrate is removed by selectively etching, lapping/polishing, wafer lift-off, or a combination thereof. However, Horng et al. merely discloses applying etching to remove the GaAs substrate. Therefore, Horng et al. fails to teach removal of the provisional substrate as recited in claim 5.

Since claims 2 through 5 depend from claim 1, Applicants submit that these claims are also patentable for at least the same reasons discussed with regards to claim 1.

Hornig et al. does not expressly teach the entire subject matter of claims 1 through 5, that is, the citation fails to disclose the claimed method of the present invention.

B. Rejection of claims 1 through 12 [sic] under 35 U.S.C. §102(e) as being anticipated by Yoo (U.S. Patent Publication No. 2003/0189212 A1)

It is respectfully submitted that Yoo fails to disclose each and every element as set forth in independent claims 1 and 6.

As discussed above, according to claim 1, a LED epitaxial structure is formed on a provisional substrate, and a first electrode layer is formed on the LED epitaxial structure. A metallic permanent structure is formed on the first electrode layer. Therefore, the provisional substrate and the metallic permanent structure are deposited on the opposite side of the LED epitaxial structure. Further, the metallic permanent structure is formed prior to the removal of the provisional substrate.

Similarly, according to claim 6, the LED epitaxial structure is formed on the provisional substrate, and the LED epitaxial structure is etched to form a plurality of LED epitaxial chips. A plurality of first electrodes layer is formed on the plurality of LED epitaxial chips. A metallic permanent structure is formed on the plurality of LED epitaxial chips. Therefore, the provisional substrate and the metallic permanent structure are deposited on the opposite side of the LED

epitaxial structure. Further, the metallic permanent structure is formed prior to the removal of the provisional substrate.

In the method disclosed by Yoo, however, a sapphire substrate 122 and a thick film support 200 are formed on the same side of the LED epitaxial structure. That is, it is impossible for the sapphire substrate to exist with the thick film support at the same time. To form the thick film support, the sapphire substrate must be removed first. Hence, the method in claim 1 is not anticipated by Yoo.

Similar arguments can be formulated regarding the Examiner's rejection of the dependent claims.

Moreover, claims 4 and 9 respectively further disclose more than four kinds of materials for the metallic permanent substrate. Furthermore, the materials of the thick film support disclosed by Yoo are Cu, Au and Al only. Therefore, Yoo apparently fails to teach the materials of the metallic permanent substrate in claims 4 and 9.

In claims 5 and 10 the provisional substrate is removed by selectively etching, lapping/polishing, wafer lift-off, or the combination thereof. However, Yoo merely discloses applying laser lift-off to remove the sapphire substrate. Therefore, Yoo fails to teach the removal the provisional substrate as recited in claims 5 and 10.

Also, in claims 11 and 12, there are several kinds of materials recited for the dielectric layer. Nevertheless, the epoxy dielectric layer disclosed in Yoo is only made of epoxy. Accordingly, the materials of the dielectric layer are not anticipated by Yoo.

Since claims 2 through 5 depend from claim 1, and claims 7 through 12 depend from claim 6, Applicants submit that these claims are allowable for at least the same reasons as their independent claims 1 and 6, respectively.

Yoo does not expressly teach the subject matter of claims 1 through 12, that is, the citation does not disclose the claimed method of the present invention.

II. Summary of Traversal of Rejections Under 35 USC § 102

It is therefore respectfully submitted that the claims as presently presented are novel and non-obvious over the cited references taken alone or in combination. Applicants believe that this response traverses the rejections under 35 USC § 102. Applicants respectfully request that the rejection of independent claims 1 and 6 under 35 USC § 102 be withdrawn.

It is also submitted that the rejection of dependent claims 2-5 and 7-12 under 35 USC § 102 should be withdrawn *inter alia*, as they are dependent on the respective independent claims, and for at least similar reasons discussed in detail above with reference to claims 1 and 6.

Accordingly, Applicants request the Examiner to reconsider and withdraw the rejection of presently pending claims 1-12.

III. Allowable Claims

Applicants note with appreciation the indicated allowability of claims 13-20.

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CONCLUSION

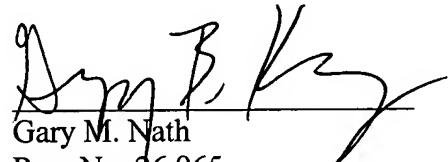
In light of the foregoing, Applicants submit that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application. Favorable action with an early allowance of the claims is earnestly solicited.

Respectfully submitted,

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